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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/115,444	07/14/1998	FUNG LENG CHEN	TIS-25912	1393

23494 7590 02/04/2003

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EXAMINER

DINH, TUAN T

ART UNIT PAPER NUMBER

2827

DATE MAILED: 02/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/115,444

Applicant(s)

CHEN ET AL.

Examiner

Tuan T Dinh

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 1998 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 16.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. The request filed on 01/22/02 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/115,444 is acceptable and a CPA has been established. An action on the CPA follows.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "first, second, and third layers, claims 16, 21, line 2" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily

published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-10, 12, 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura et al. (U. S. Patent 5,777,391)

Regarding claims 1-3, 8-9, 22, Nakamura discloses an IC package as shown in figures 1-4 comprising:

- a substrate (1, column 6, line 47) having a plurality of peripheral openings (slits 5, column 7, lines 44-48) and first and second sides including first and second layers (3, 1);

- a plurality of routing strip (1A) being integral with said substrate;

- a chip (semiconductor die 2, column 7, line 11) comprising operative and non-operative sides, wherein said chip (2) is adhered to said second surface of said substrate (column 7, lines 17-20);

- a plurality of electrical conductors or bonding pads (2A, column 7, lines 27-34) attached to said chip (2), each electrical conductor is aligned within a respective one of said openings of said substrate;

- a plurality of pads (1B, column 7, line 2) disposed on said first surface of said substrate generally centralized within said openings of said substrate (1);

- wire bonding (6) electrically connecting said chip (2) to said substrate (1) between said bonding pads (2A) and said routing strips (1A), and

- potting material (7; 7A) filling said peripheral openings (5).

Regarding claim 4, Nakamura discloses the package as shown in figure 16 wherein at least one of said pads disposed on said substrate being electrically connected at least one of said routing strips

Regarding claims 5-6, 9-10, 12, Nakamura discloses a plurality of solder balls (4) disposed on said pads (1B-figure 2).

Regarding claim 7, Nakamura discloses said potting material (7) adheres said chip to said substrate (1).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 14-16, 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. ('391) in view of Barrow (U. S. Patent 4,560,962).

Nakamura discloses all of the claimed invention except for a thickness of the substrate between about 8-28 mils, and first, second, and third layers of the substrate having thickness about 12, 8, and 8 mils respectively.

Barrow shows a substrate having thickness about 8-28 mils including first, second, and third layers having thickness about 12, 8, and 8 mils respectively, disclosed in figures 1-6.

It would have been obvious to have a structure thickness of a substrate between 8-28 mils and first, second, and third layers of the substrate having thickness about 12, 8, and 8 mils respectively, as taught by Barrow to employ the package of Nakamura in order to provide a characteristic of impedance between each layer.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura ('391) in view of Imamura et al. (U. S. Patent 5,512,786)

Nakamura does not disclose a diameter of a solder ball between about 8-20 mils. Imamura shows a diameter of a solder ball having a diameter between about 8-20 mil disclosed in figures 2-3.

It would have been obvious to have a diameter of solder ball about 8-20 mils as taught by Imamura to employ the package of Nakamura in order to provide an accurately electrical connected to an external electronic circuit.

8. Claims 13 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura ('391) in view of Lau (U. S. Patent 6,075,710)

Lau shows a thickness of a chip between about 10-20 mils (column 6, line 67, column 7, line 1).

It would have been obvious to have a chip's thickness between about 10-20 mils as taught by Lau to employ the package of Nakamura in order to provide a size of chip to be an accurately electrical connected to a substrate or board.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 703-306-5856. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-1341 for regular communications and 703-305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

TD
January 26, 2003


Exr. JOHN B. VIGOR
GAM 2827